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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,819	03/25/2004	Hans Uwe Faust	3081	6600

7590 01/18/2006  
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EXAMINER

WU, IVES J

ART UNIT PAPER NUMBER

1713

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/808,819	FAUST ET AL.	
	Examiner	Art Unit	
	Ives Wu	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/1/04</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102/103*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(1). **Claims 1, 3-15** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jakob et al (US005545684A).

(2). Jakob et al disclose an aqueous emulsion adhesive comprising homo- or copolymeric polyvinyl esters, polymeric protective colloids, water soluble compounds which can be complexed with polymeric protective colloids (Abstract, line 1-4). Suitable monomers for these

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homo- or copolymeric polyvinyl esters include vinyl acetate and vinyl acetate is particularly preferred (Col. 3, line 34-36, 43-44). The proportion of these vinyl esters in the polymer is generally at least 50 wt% (Col. 3, line 45-47).

Any other monomers can be copolymerized with vinyl ester units, for example, other ethylenically unsaturated monomers include acrylic acid, methacrylic acid and esters thereof with primary, secondary, saturated, monohydric alcohols having 1 to 18 carbon atoms, for example methanol, ethanol, cycloaliphatic alcohols (Col. 3, line 49-56). The proportion of these comonomers relative to the total amount of monomers is up to 25 wt% (Col. 3, line 61-62).

Other suitable comonomers for forming the polyvinyl esters include ethylenically unsaturated hydrocarbons such as vinyl toluene, styrene (Col. 3, line 64 – Col. 4, line 1). The proportion of these comonomers relative to the total amount of monomers is up to 50 wt% (Col. 4, line 3-5).

Particularly suitable comonomers are those containing N-functional groups such as N-methylol(meth)acrylamide (Col. 4, line 16-19). The proportion of these comonomers relative to the total amount of monomers is up to 15 wt% (Col. 4, line 30-31).

In addition to the homo-or copolymeric polyvinyl esters, the novel adhesive emulsions contain the protective colloids. An example of suitable compound is polyvinyl alcohol, in particular polyvinyl alcohol having a degree of hydrolysis of 60 – 100 mol% with preferred viscosity of from 2 to 70 mPa.s for 4% strength by weight aqueous solution at 20 °C (Col. 4, line 54-61).

The polyvinyl ester emulsion is prepared by the conventional continuous or batch procedure of free-radical emulsion polymerization, using water-soluble initiator systems (Col. 7,

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line 13-16). The polymeric protective colloids and emulsifiers can be added before, during or after the polymerization (Col. 7, line 23-24). The system is then preferably activated in a two-component system by addition of suitable amounts of an acidic complexible compound, in particular, phosphoric acid (Col. 8, line 6-10). The novel adhesive preparations are particularly suitable as boiling water resistant adhesives, in particular for cellulosic substrates, such as wood (Col. 8, line 63-65).

(3). As to the water-based bicomponent adhesive prepared in the presence of a protective colloid system which comprises high molecular weight partially hydrolyzed polyvinyl alcohol and intermediate hydrolyzed polyvinyl alcohol in the **independent claim 1**, it is recognized that claim 1 is a product-by-process claim even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. *In re Thorpe*, 227 USPQ 964 (CAFC 1985). Since Jakob's et al adhesive composition is substantially identical to that of the applicant's, in view of lacking to show criticality by the applicant for the process of making, applicant's process is not given patentable weight in this claim.

(4). As to the cycloaliphatic monomer to be isobornyl methacrylate in the **dependent claim 3**, Jakob et al disclose the monomer being vinyl ester of methacrylic acid and C<sub>1</sub> to C<sub>18</sub> cycloaliphatic alcohols and relative long-chain fatty alcohols in paragraph (2). Isobornyl methacrylate is one example of them.

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As to alkyl methacrylate to be methyl methacrylate in **dependent claim 4**, Jakob et al disclose the monomer being vinyl ester of methacrylic acid and methanol in paragraph (2) which is methyl methacrylate.

As to the high weight average molecular weight of polyvinyl alcohol used as protective colloids with degree of hydrolysis from 86 – 89% in **dependent claim 5**, Jakob et al **teach** the polyvinyl alcohol is hydrolyzed with a degree from 60 –100 mol% with preferred viscosity of from 2 to 70 mPa.s in paragraph (2) which includes the high weight average molecular weight polyvinyl alcohol.

As to the intermediate weight average molecular weight of polyvinyl alcohol used as protective colloids with degree of hydrolysis from 90 – 96% in **dependent claim 6**, Jakob et al **teach** the polyvinyl alcohol is hydrolyzed with a degree from 60 –100 mol% with preferred viscosity of from 2 to 70 mPa.s in paragraph (2) which includes the intermediate weight average molecular weight polyvinyl alcohol.

As to the limitation of **dependent claim 7**, Jakob et al **teach** the protective colloids to be polyvinyl alcohol with degree of hydrolysis 60-100 mol%, and a preferred viscosity of from 2 to 70 mPa.s in paragraph (2) which includes the intermediate weight average molecular weight polyvinyl alcohol with the degree of hydrolysis of from 90 – 96% and 86 – 89%. Although Jakob et al **do not teach** the blend of two intermediate average molecular weight of partially hydrolyzed polyvinyl alcohols with degree hydrolysis from 90 – 96% and 86 – 89% separately. However, the polyvinyl alcohol with preferred viscosity of from 2 to 70 mPa.s including intermediate weight average molecular weight polyvinyl alcohols, and 60 – 100 mol% degree of hydrolysis including the degree of hydrolysis 86 – 89 % and 90 – 96%. Since each intermediate

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weight average molecular weight partially hydrolyzed polyvinyl alcohol with different degree of hydrolysis is known as a protective colloid and the person of ordinary skill in the art would have expected such a combination to work in an additive or cumulative manner. *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See §§ MPEP 2144.06.

As to the limitation of **dependent claim 8**, in absence of showing the criticality of the records, the optimization value for the blending ratio range in a known process renders *prima facie obviousness* within one ordinary skill in the art. *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

(5). **Claims 1, 3-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jakob et al (US005545684A) in view of Smith et al (US20040122151A1).

Even if assuming that the process for making the polymer taught by Jakob is different from that recited in instant claim 1 in that Jakob et al **do not teach** the partially hydrolyzed polyvinyl alcohol is blend of high molecular weight and intermediate molecular weight polyvinyl alcohol, Jakob et al do **teach** the protective colloids to be polyvinyl alcohol with degree of hydrolysis of 60-100 mol% and preferred viscosity of from 2 to 70mPa.s (Col. 4, line 54-61).

Furthermore, Smith et al **teach** the “partially” hydrolysis of polyvinyl alcohol in the industry are believed to provide improved receptivity to certain inks with less water sensitivity ([0033]). For coating compositions, the polyvinyl alcohol preferably has a relative low weight average molecular weight between 13,000 and about 50,000 ([0034], line 1-3). For wet end additive compositions, the polyvinyl alcohol preferably has a higher weight average molecular weight between about 85,000 and about 186,000 ([0035], line 1-3).

The advantages of using relative low weight average molecular weight polyvinyl alcohol is less viscous. It has been found that this relatively low molecular weight is associated with high coating-solids, which makes it easier to dry the coatings on the desired substrate. This saves time and labor and is a processing aid ([0034], line 4-9).

The advantage of using high weight average molecular weight is to have a greater strength than low molecular weight material for the application such as wet end ([0035], line 4-7).

Therefore, it would have been obvious at time the invention was made to use the blend of partially hydrolyzed high weight average molecular weight and relative low weight average molecular weight polyvinyl alcohol taught by Smith et al for the protective colloids of polyvinyl alcohol in the adhesive composition of Jakob et al in order to obtain the aforementioned combined advantages. Alternatively, the partially hydrolyzed polyvinyl alcohol taught by Jakob et al is genus, the low weight average molecular weight polyvinyl alcohol and high weight average molecular weight polyvinyl alcohol are species. One ordinary skill in the art would expect all species work well for genus, motivated by a reasonable expectation of success. *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). Moreover, each relative low weight average molecular weight and high weight average molecular weight partially hydrolyzed polyvinyl alcohol is known as a protective colloid and the person of ordinary skill in the art would have expected such a combination to work in an additive or cumulative manner. *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See §§ MPEP 2144.06.

As to the rejections over claims 3-15, see paragraph (2) and (4).



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(6). **Claims 1, 3-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jakob et al (US005545684A).

Even if assuming that the process for making the polymer taught by Jakob is different from that recited in instant claim 1 in that Jakob et al **do not teach** the partially hydrolyzed polyvinyl alcohol is blend of high molecular weight and intermediate molecular weight polyvinyl alcohol, Jakob et al do **teach** the protective colloids to be polyvinyl alcohol with degree of hydrolysis of 60-100 mol% and preferred viscosity of from 2 to 70mPa.s in Paragraph (2).

Although Jakob et al **do not teach** the blend of high and intermediate average molecular weight of partially hydrolyzed polyvinyl alcohol. However, the polyvinyl alcohol with preferred viscosity of from 2 to 70 mPa.s including high, intermediate weight average molecular weight polyvinyl alcohols. Since each intermediate weight average molecular weight and high weight average molecular weight partially hydrolyzed polyvinyl alcohol is known as an effective protective colloid and the person of ordinary skill in the art would have expected such a combination to work in an additive or cumulative manner. *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). See §§ MPEP 2144.06.

As to the rejections over claims 3-15, see paragraph (2) and (4).

(7). **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Jakob et al (US005545684A) in view of Bennett et al (US20020007910A1).

As to the aromatic monomer to be 2-phenoxy ethyl acrylate in the **dependent claim 2**, Jakob et al **do not teach** the use of 2-phenoxy ethyl acrylate as aromatic monomer.

However, Bennett et al **teach** the thermosettable pressure sensitive adhesive including the ethylenically unsaturated monomers such as 2-phenoxy ethyl acrylate ([0171]).

The advantage of using the 2-phenoxy ethyl acrylate monomer in the adhesive composition is due to the pressure sensitivity in adhesion.([0019]).

Therefore, it would have been obvious at time the invention was made to use the aromatic monomer such as 2-phenoxy ethyl acrylate taught by Bennett et al in the adhesive composition of Jakob et al in order to obtain the aforementioned advantage.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Ives Wu  
Art Unit: 1713  
Date: January 10, 2005

  
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